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Introduction to the Advances in Design Science Research Minitrack

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This minitrack purpose is to provide a venue for design science researchers (DSR) to share their work and interact with likeminded scholars. DSR is a prominent form of engaged scholarship, which combines inquiry with a potential for action and intervention. DSR may be viewed as having three related subfields:

- Science of design, which focuses on creating 'new-to-the-world' artifacts [1-3] has a welcoming outlet. We try to provide such an outlet for researchers doing artifact driven research in information systems, but also in other fields such as industrial engineering or service design.
- Design theory research, which focuses on the development of theories about creating new or improved systems based on kernel or grand theories. The design theory concept was first articulated two decades ago [4, 5] and continues to be developed [6].
- Design Research, which focuses on the study of how designers actually conduct design activities, e.g., science of design research. Papers in this subfield could potentially come not only from IS, but also from architecture and design.

All three subfields are often (but not always) tightly engaged with design practice. Accordingly, they frequently embody participative forms of research that rest on the advice and perspectives of multiple stakeholders in understanding a complex social problem.

The building and application of designed artifacts in real settings produces knowledge and understanding of a problem domain and its solutions, which is then potentially transferable to other domains. In design science, the engagement is primarily focused on the design and evaluation of an artifact; learning through building and evolving it with the aim to generate theoretical insights. This is often an iterative research process and sometimes capitalizes on learning via both researcher and subject expertise within the context of the participants' social system. It can be a clinical method that puts IS researchers in an active supporting role for advanced practice.

Accordingly, in this mini track we have research contributions that arise from all three subfields of DSR described above. This includes engaged approaches, studies of the practical use of DSR approaches, the use of such approaches to expand theory, and conceptual foundations that significantly and cogently expand our understanding of the epistemology and methodology of such approaches and their philosophical underpinnings. These include:

- Developing design artifacts and design theories
- Evaluating and testing design artifacts and design theories
- Different approaches to the design of artifacts and design theorizing
- Design as a creative act in development for systems etc.
- Advancing theory and practice in designing for systems etc.
- Design experiences in organizational systems and technology etc.
- Concrete design projects and their outcomes

The papers included in this year's minitrack cover the topics from design of platform collaboration in the newspaper industry to design of DSR papers as an artefact using registered reports. These papers answer to our call with artifact driven DSR and we welcome more such submissions from different fields of study. In overall, we this year received in total 17 submissions, of which we accepted 8 with acceptance rate of 47%.

We also have papers that seek to advance DSR as a field, which has become a tradition with the mini track. One of these proposes criteria for evaluation of taxonomies used by design science researchers. Another paper proposes a design framework for evaluating and quantifying Internet-of-Things (IoT) potential privacy and

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security risks. We also have two very interesting research methods papers. The first of these introduces workshop-based research method for designing and evaluating artifacts while the second depicts an elaborated action design research approach for game-based learning in cybersecurity incident detection and handling.

On annual terms we like to include papers in the mini track that convey thinking that is "outside the box". This year we accepted a paper looks at the development of research questions by applying the writing-as-inquiry model with a specific focus on students doing their thesis and dissertation work.

Finally, we have a paper that presents a bibliographic analysis of 15 Years of information systems design science research. The paper provides a retrospective analysis of the DSR paradigm in order to help us understand the logic and dynamics of its development.

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